

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION**

**PRESTWICK LICENSING LLC**

Plaintiff,

v.

**ANRITSU AMERICAS SALES  
COMPANY,**

Defendant.

C.A. No. 2:22-cv-284-JRG-RSP

**JURY TRIAL DEMANDED**

**PATENT CASE**

**AMENDED COMPLAINT FOR PATENT INFRINGEMENT**

Plaintiff Prestwick Licensing LLC files this Amended Complaint for Patent Infringement against Anritsu Americas Sales Company and would respectfully show the Court as follows:

**I. THE PARTIES**

1. Plaintiff Prestwick Licensing LLC (“Prestwick” or “Plaintiff”) is a Texas limited liability company having an address at 5121 Collin McKinney Pkwy Ste 500, McKinney, Tx 75070-1524.

2. On information and belief, Defendant Anritsu Americas Sales Company (“Defendant”) has a place of business at 450 Century Parkway, Suite 190, Allen, TX 75013. Defendant has a registered agent Paul Innis at 450 Century Parkway, Suite 190, Allen, TX 75013.

**II. JURISDICTION AND VENUE**

3. This action arises under the patent laws of the United States, Title 35 of the United States Code. This Court has subject matter jurisdiction of such action under 28 U.S.C. §§ 1331 and 1338(a).

4. On information and belief, Defendant is subject to this Court’s specific and general personal jurisdiction, pursuant to due process and the Texas Long-Arm Statute, due at least to its

business in this forum, including at least a portion of the infringements alleged herein, at 450 Century Parkway, Suite 190, Allen, TX 75013.

5. Without limitation, on information and belief, within this state, Defendant has used the patented inventions thereby committing, and continuing to commit, acts of patent infringement alleged herein. In addition, on information and belief, Defendant has derived revenues from its infringing acts occurring within Texas. Further, on information and belief, Defendant is subject to the Court's general jurisdiction, including from regularly doing or soliciting business, engaging in other persistent courses of conduct, and deriving substantial revenue from goods and services provided to persons or entities in Texas. Further, on information and belief, Defendant is subject to the Court's personal jurisdiction at least due to its sale of products and/or services within Texas. Defendant has committed such purposeful acts and/or transactions in Texas such that it reasonably should know and expect that it could be haled into this Court as a consequence of such activity.

6. Venue is proper in this district under 28 U.S.C. § 1400(b). On information and belief, Defendant has businesses in this district at 450 Century Parkway, Suite 190, Allen, TX 75013. On information and belief, from and within this District Defendant has committed at least a portion of the infringements at issue in this case.

7. For these reasons, personal jurisdiction exists, and venue is proper in this Court under 28 U.S.C. § 1400(b).

**III. COUNT I**  
**(PATENT INFRINGEMENT OF UNITED STATES PATENT NO. 7,668,301)**

8. Plaintiff incorporates the above paragraphs herein by reference.

9. On February 23, 2010, United States Patent No. 7,668,301 ("the '301 Patent") was duly and legally issued by the United States Patent and Trademark Office. The '301 Patent is titled "Simulated User Calling Test System and Method with Built-In Digital SPC-Exchange." A true

and correct copy of the '301 Patent is attached hereto as Exhibit A and incorporated herein by reference.

10. Prestwick is the assignee of all right, title, and interest in the '301 patent, including all rights to enforce and prosecute actions for infringement and to collect damages for all relevant times against infringers of the '301 Patent. Accordingly, Prestwick possesses the exclusive right and standing to prosecute the present action for infringement of the '301 Patent by Defendant.

11. The invention in the '301 Patent relates to the field of digital stored program control (SPC) switch technique in telecommunications, particularly, to a simulated user call test system built-in digital SPC switch and method. (Ex. A at 1:13-16).

12. In the prior art, simulated user calling performance tests for digital SPC switches mainly employed large traffic call test instruments. (*Id.* at 1:20-22). The available commercial simulated user calling test instruments simulated the calling process of actual users realistically, in which the test is performed by transmitting and receiving pass detecting tone and judging the pass detecting tone while a call is initiated on a user line, a dial is simulated, and the call is communicated. (*Id.* at 1:23-28). However, these systems were expensive and therefore many network operators do not buy this type of equipment and therefore calling tests are very complicated during pass tests of many digital SPC switches. (*Id.* at 1:31-37). It is therefore advantageous and simpler if a calling test instrument was built into the switch. (*Id.* at 1:35-37).

13. There are existing switches with a built-in large traffic calling test system characterized by designing a virtual calling process on a user element processor, simulating the whole process including initiating a call by a user and answering the call by the called user. (Ex. A at 1:43-48). However, the main disadvantage of these kind of system was that it could only realistically test the process of call signaling by the main control system in a test switch, but not

the performance such as the hardware interface performance in the switch and the performance of the switching connection path. (*Id.* at 1:48-53). Furthermore, they cannot accurately reflect the call process performance of the switch system. (*Id.* at 1:53-54).

14. The technical problem solved by the inventors is to provide a simulated user call test system located within a digital SPC switch, and to provide a test method based on built-in modules of a digital SPC switch, in which equal functions to commercial external call test systems can be realized with a lower cost by user the current hardware and software resources in a digital SPC switch. (*Id.* at 1:58-64).

15. **Direct Infringement.** Upon information and belief, Defendant has been directly infringing claim 1 of the ‘301 Patent in Texas, and elsewhere in the United States, by making, using, selling, and or offering to sell the Anritsu MD8475B (“Accused Instrumentality”).

16. The Accused Instrumentality is a simulated user call test system (*e.g.*, GUI-based SmartStudio MX847570B software with the MD8475B base-station simulator), characterized in that the simulated user call test system is built in a digital stored program control switch (*e.g.*, the Accused Instrumentality), and comprises a back process module (*e.g.*, GUI-based SmartStudio MX847570B software), a front call control process module (*e.g.*, user equipment (UE)) and a hardware subsystem (*e.g.*, Hardware Units (Multi Signaling unit, GSM signaling unit enhanced signaling unit) in the Accused Instrumentality) for performing a call test (*e.g.*, Both basic mobile calls and Voice over LTE (VoLTE) calls test). As shown below, the Accused Instrumentality is a part of the simulated user call test system which is a GUI-based SmartStudio MX847570B software with the MD8475B base-station simulator. The Accused Instrumentality comprises back process module (*e.g.*, GUI-based SmartStudio MX847570B software software), a front call control process module (*e.g.*, user equipment (UE)) and a hardware subsystem (*e.g.*, Hardware) for

performing a call test (*e.g.*, both basic mobile calls and Voice over LTE (VoLTE) calls test). The back process module (GUI-based SmartStudio MX847570B software) provides an operation interface for a user to perform a call test setup (setting various parameters for call test), receives call test result data (*e.g.*, result report) transmitted by the front call control process module (*e.g.*, user equipment (UE)), and displays the result on the display of the Accused Instrumentality. The front call control process module receives call test setup parameters provided by the SmartStudio MX847570B software, controls the hardware subsystem (Hardware Units (Multi Signaling unit, GSM signaling unit enhanced signaling unit) in the Accused Instrumentality) to perform a call test, and reports a result of the call test to SmartStudio MX847570B software. The hardware subsystem comprises function process units (Multi Signaling unit, GSM signaling unit enhanced signaling unit) of the switch to receive instructions from the user equipment (UE), perform tests comprising picking-up phones, detecting signaling tone, and talking; and report test results to the front call control process module.



(*E.g.*, <https://www.anritsu.com/en-us/test-measurement/products/md8475b>).



PRODUCTS TECHNOLOGIES INDUSTRIES BUY SUPPORT

#### Supports Versatile Wireless Device Tests

A full line of test environments are supported for the general mobile verification phase, such as max. throughput performance tests, stress tests, and battery consumption tests of LTE terminals, as well as CS Fallback, call connection reliability and stability tests at handover, communication tests at low RF power, offloading from LTE to WLAN tests, and service verification using LTE multiple PDN and SMS in a multi-cell environment.

In addition, the time required to configure a test environment is greatly reduced by the easy-to-use GUI-based SmartStudio software, as well as supplied test sequences for automatic remote control of the GUI.

##### Multi-cell Testing

Verifies correct mobile handover by changing settings between neighboring base stations.

##### Battery Management

Simulates various usage environments for measuring battery life.

##### Emergency

Simulates emergency notifications, such as earthquake early warning, which are hard to test on live networks.

##### Packet Communication

Evaluates throughput by changing base station settings and simulates built-in SIP server.

##### Voice / VoLTE

Tests both basic mobile calls and Voice over LTE (VoLTE) calls.

##### WLAN Offload

Simulates a policy server and dedicated gateway for distributing traffic over a WLAN.

performing a call test



PRODUCTS TECHNOLOGIES INDUSTRIES BUY SUPPORT

#### Features

#### Description

The Signalling Tester MD8475B is an all-in-one base station simulator supporting LTE, LTE-Advanced, W-CDMA/HSPA/HSPA Evolution/DC-HSDPA, GSM/GPRS/EGPRS and TD-SCDMA/TD-HSPA. It supports service, VoLTE and call-processing tests for multimode LTE smartphones and mobiles with excellent cost-performance.

#### Technologies

In addition, 1-Gbps IP performance evaluation tests are made easy by the built-in traffic generator with all-in-one support for LTE-Advanced 3CA/4CA technologies.

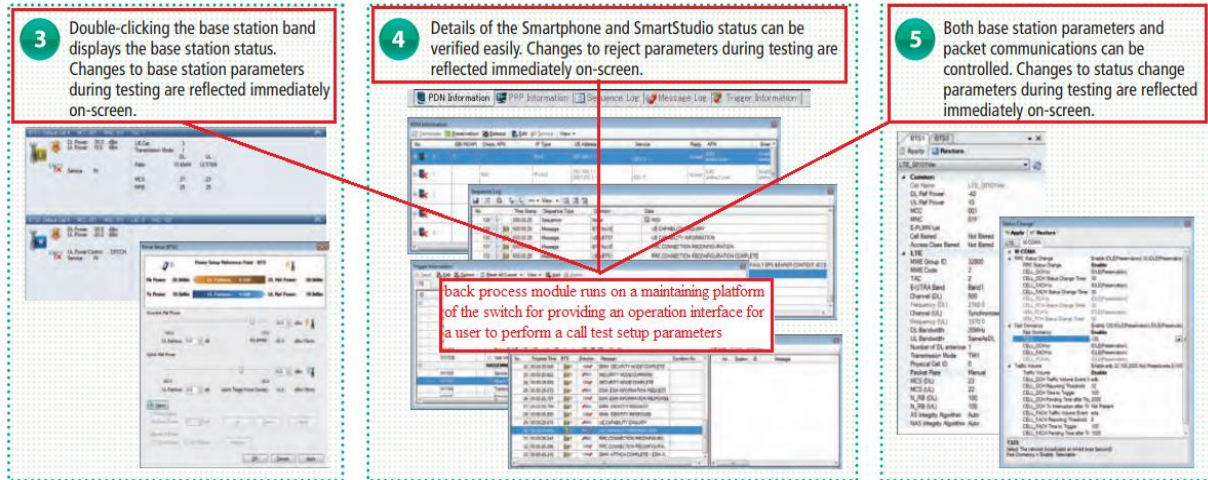
Call test setup parameters provided by the back process module (GUI-based SmartStudio MX847570B software)

#### Simple GUI Settings Eliminate Complex Test-case Creation

Using the GUI-based SmartStudio MX847570B software with the MD8475B base-station simulator makes it easy to configure a smartphone test environment. Various parameters, such as frequency changes, control status, etc., are set at the GUI to run one-touch tests—including quasi-normal tests—that cannot be run easily on live networks. Eliminating the need to create test cases or understand signalling protocols makes it easier to focus on testing smartphone functions and performance.



(E.g., <https://www.anritsu.com/en-us/test-measurement/products/md8475b>).



(E.g., <https://dl.cdn-anritsu.com/en-en/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/md8475b-e1201.pdf>).

**Anritsu** Advancing beyond

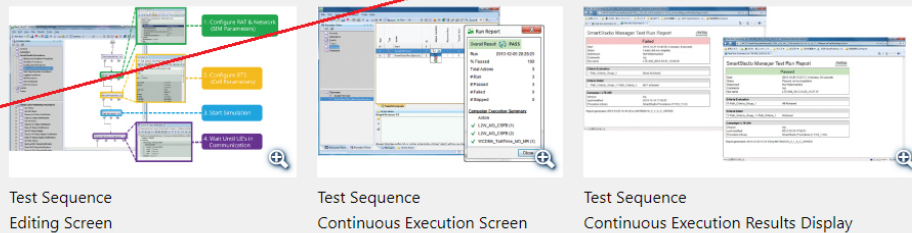


PRODUCTS TECHNOLOGIES INDUSTRIES BUY SUPPORT

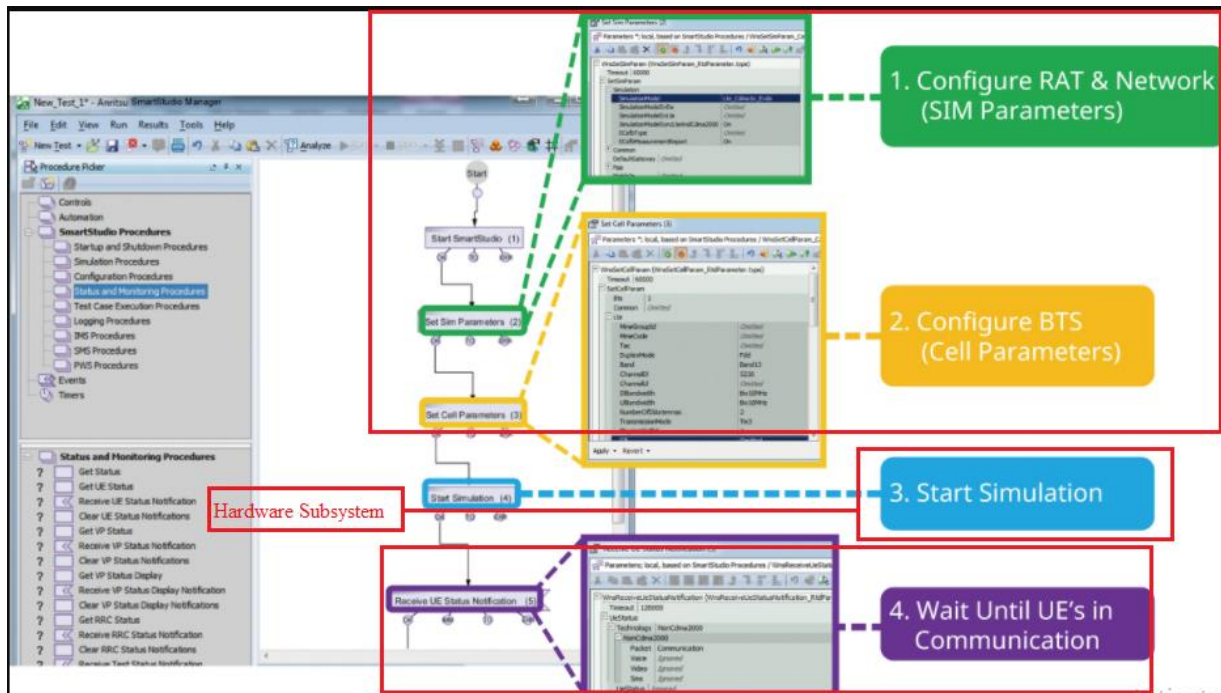
#### Automated Continuous Testing with SmartStudio

The SmartStudio Manager MX847503A software is for editing test sequences and running created test sequences automatically and continuously. This software automates manual testing using the SmartStudio MX847570B software. Automated, operator-free evaluation improves efficiency. Additionally, Pass/Fail evaluations can be reported along with the continuous test results. In particular, the MD8475B supports fully automated tests for all networks even when testing a 20-band LTE terminal using Primary Cell band types and Secondary Cell 1/2 band types requires a total of 8000 band combinations for 3CA tests.

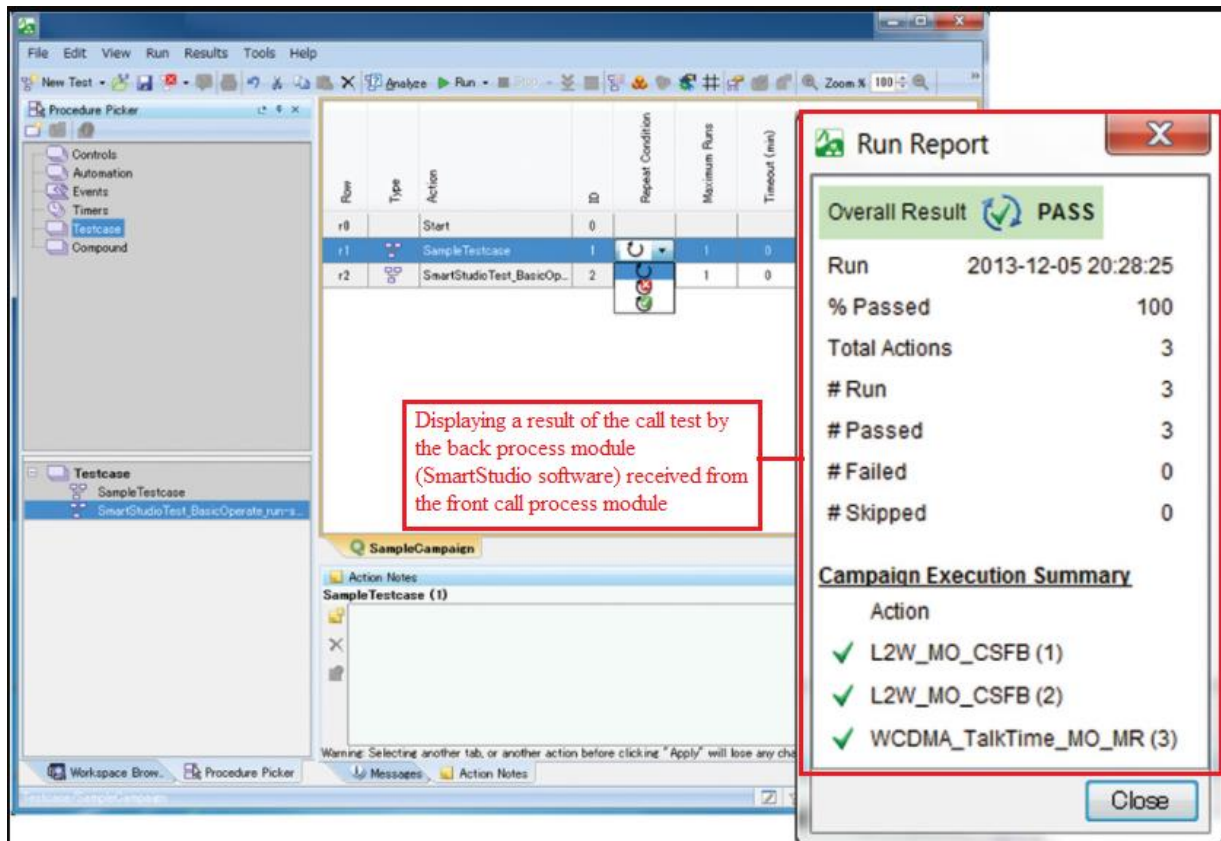
Reporting a result (by front call process module) of the call test to the back process module and displaying the result report by the back process module (GUI-based SmartStudio MX847570B software)



(E.g., <https://www.anritsu.com/en-us/test-measurement/products/md8475b>).



(E.g., [https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products\\_e/md8475a/fig01\\_1-4.jpg?la=en-us](https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products_e/md8475a/fig01_1-4.jpg?la=en-us)).



(E.g., [https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products\\_e/md8475a/screens02\\_1.jpg?la=en-us](https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products_e/md8475a/screens02_1.jpg?la=en-us)).

SmartStudio System Configuration							
System		LTE		W-CDMA	TD-SCDMA	GSM	
Digital stored program control switch (the accused product)	Unit	Signalling Tester MD8475B					
	Unit Option	Extended RF MD8475B-002 Fading IO Option MD8475B-004					
Maintaining platform of the switch	Platform Software	Multi-cell Software MX847502B					
		—		Multimedia Interface Software MX847508B			
Hardware Subsystem		—		AMR-WB MX847508B-001		—	
		Multi Signalling Unit MD8475B-070					GSM Signalling Unit MD8475B-020
Function process units (in the hardware subsystem) of the digital stored program control switch	Basic Configuration	Hardware	Enhanced Multi-signalling Unit MD8475B-071		—	—	—
		Software	LTE Simulation Software MX847550B		W-CDMA Simulation Software MX847510B	TD-SCDMA Simulation Software MX847540B	GSM/GPRS Simulation Software MX847520B
	Options	LTE 2x2 MIMO Option MX847550B-020		HSPA Evolution/ DC-HSDPA Option MX847510B-011	—	—	—
		LTE 4x4 MIMO Option MX847550B-021					
		LAA Option MX847550B-030					
		LTE Carrier Aggregation Option MX847550B-040					
		LTE Carrier Aggregation DL3CCs Option MX847550B-041					
		LTE Carrier Aggregation DL4CCs Option MX847550B-042					
		LTE Carrier Aggregation DL5CCs Option MX847550B-043					
		LTE RoHC Option MX847550B-060					
Support Service	MX847570B 1 Year Support Service MX847570B-SS110						
User Interface	SmartStudio MX847570B						

(E.g., <https://www.anritsu.com/en-us/test-measurement/products/md8475b>).

## MD8475B Signalling Tester



- LTE-A 3CA/4CA tests with 8 Tx and 4 Rx RF signals (up to 6 GHz)
- 2G to 4G system tests (W/G/C2K/EVDO/TDS/LTE)
- CA mobility tests
- Throughput tests at 1 Gbps
- Easy UE connection using integrated RF front-end

(E.g., <https://dl.cdn-anritsu.com/en-en/test-measurement/files/Product-Introductions/Product-Introduction/md8475b-el1200.pdf>).

## Simple Throughput Test Environment

- Built-in IP packet generator simplifies data throughput test environment
- Easier data throughput test automation with good repeatability

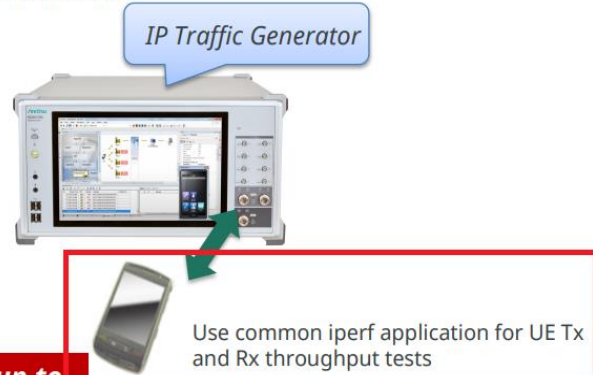
### Conventional throughput testing

- Must adjust radio layer and server settings for each application
- Performance depends on PC specifications and Ethernet load



### Throughput testing with MD8475B

- Single GUI for adjusting application radio layer and server settings
- Performance independent of PC specifications and Ethernet load



**All-in-one throughput tests up to 1 Gbps**

(E.g., <https://dl.cdn-anritsu.com/en-en/test-measurement/files/Product-Introductions/Product-Introduction/md8475b-e11200.pdf>).



## Changing the Smartphone Test Environment

### Scenario-less Mobile Phone Function Tests

#### Supports Versatile Smartphone Tests

Complex tests of multifunction smartphones are supported by the all-in-one MD8475B with interactive SmartStudio interface.



(E.g., <https://dl.cdn-anritsu.com/en-en/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/md8475b-e1201.pdf>).

17. The Accused Instrumentality is a simulated user call test system that comprises the back process module (e.g., a GUI-based SmartStudio MX847570B software) runs on a maintaining platform (e.g., Platform Software) of the switch (e.g., the Accused Instrumentality) for providing an operation interface (e.g., GUI) for a user to perform a call test setup (e.g., to set various parameters such as frequency changes, control status, etc.), receives call test result data (e.g., Pass/Fail evaluations report of test results) transmitted by the front call control process module

(*e.g.*, user equipment (UE)), and performs display and statistical processes (*e.g.*, display the result and statistical data on the display of the Accused Instrumentality). As shown below, the Accused Instrumentality is a part of the simulated user call test system which is a GUI-based SmartStudio MX847570B software with the MD8475B base-station simulator. The Accused Instrumentality comprises back process module (*e.g.*, GUI-based SmartStudio MX847570B software), a front call control process module (*e.g.*, user equipment (UE)) and a hardware subsystem (*e.g.*, Hardware) for performing a call test (*e.g.*, both basic mobile calls and Voice over LTE (VoLTE) calls test). The back process module (*e.g.*, SmartStudio MX847570B software) provides an operation interface for a user to perform a call test setup (setting various parameters for call test), receives call test result data (*e.g.*, result report) transmitted by the front call control process module (*e.g.*, user equipment (UE)), and displays the result on the display of the Accused Instrumentality. The front call control process module receives call test setup parameters provided by the SmartStudio MX847570B software, controls the hardware subsystem (Hardware Units (Multi Signaling unit, GSM signaling unit enhanced signaling unit) in the Accused Instrumentality) to perform a call test, and reports a result of the call test to SmartStudio MX847570B software. The hardware subsystem comprises function process units Multi Signaling unit, GSM signaling unit enhanced signaling unit) of the switch to receive instructions from the user equipment (UE), perform tests comprising starting a call, hanging a call and handover between calls; and report test results to the front call control process module.

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PRODUCTS TECHNOLOGIES INDUSTRIES BUY SUPPORT

Home > Test and Measurement > Products

Signalling Tester (Base Station Simulator)

MD8475B

REQUEST QUOTE DOWNLOADS



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**Supports Versatile Wireless Device Tests**

A full line of test environments are supported for the general mobile verification phase, such as max. throughput performance tests, stress tests, and battery consumption tests of LTE terminals, as well as CS Fallback, call connection reliability and stability tests at handover, communication tests at low RF power, offloading from LTE to WLAN tests, and service verification using LTE multiple PDN and SMS in a multi-cell environment.

In addition, the time required to configure a test environment is greatly reduced by the easy-to-use GUI-based SmartStudio software, as well as supplied test sequences for automatic remote control of the GUI.

**Multi-cell Testing** Verifies correct mobile handover by changing settings between neighboring base stations.

**Battery Management** Simulates various usage environments for measuring battery life.

**Emergency** Simulates emergency notifications, such as earthquake early warning, which are hard to test on live networks.

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PRODUCTS TECHNOLOGIES INDUSTRIES BUY SUPPORT

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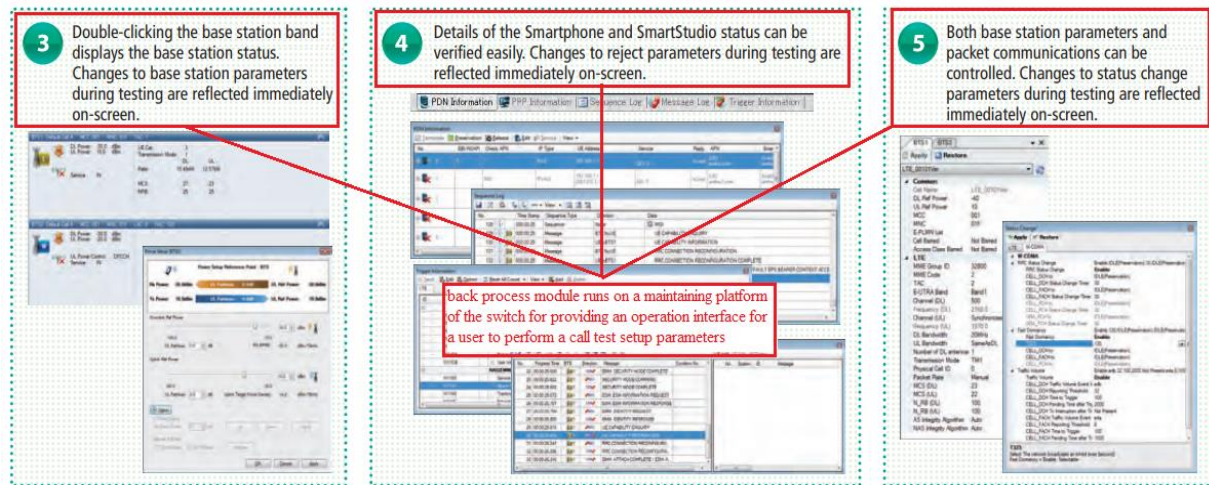
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Call test setup parameters provided by the back process module (GUI-based SmartStudio MX847570B software)



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**Anritsu** Advancing beyond

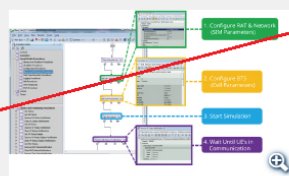


PRODUCTS TECHNOLOGIES INDUSTRIES BUY SUPPORT

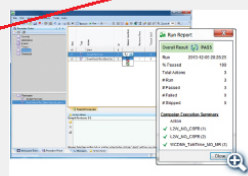
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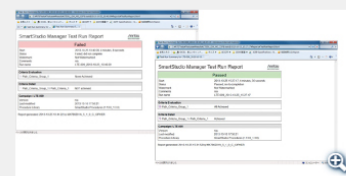
Reporting a result (by front call process module) of the call test to the back process module and displaying the result report by the back process module (GUI-based SmartStudio MX847570B software)



Test Sequence Editing Screen

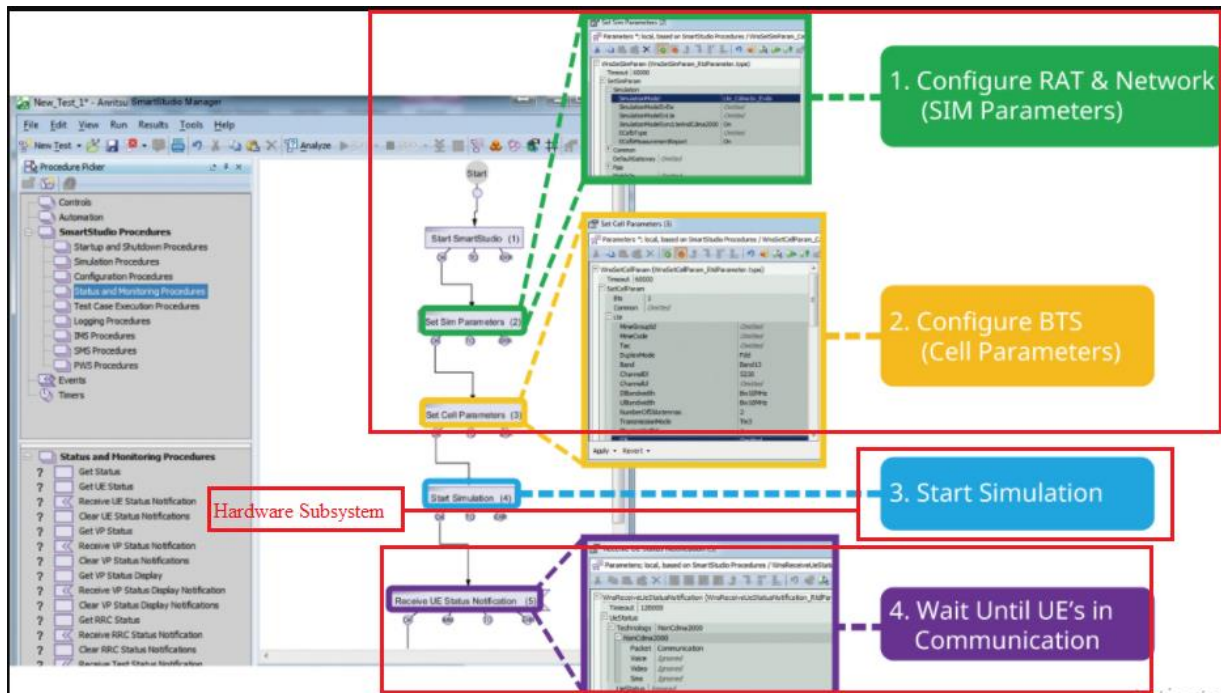


Test Sequence Continuous Execution Screen

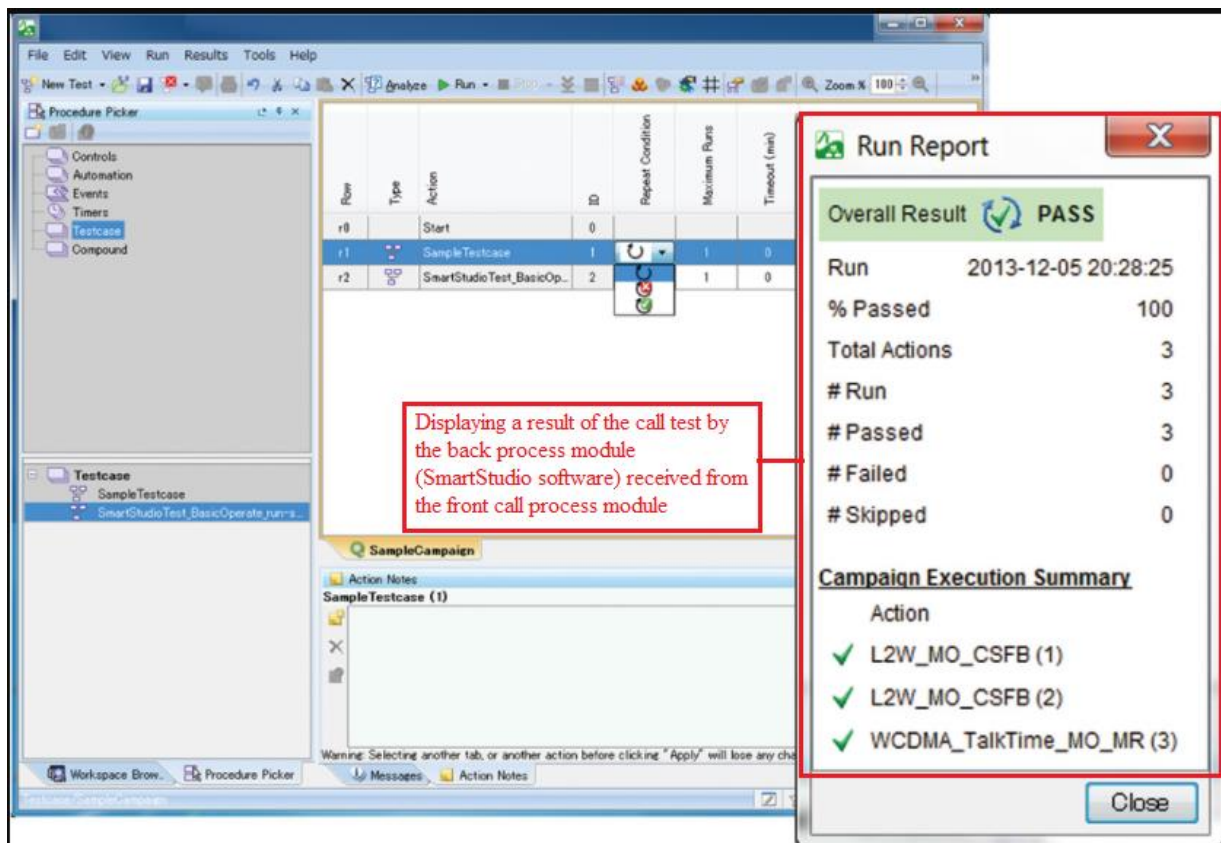


Test Sequence Continuous Execution Results Display

(E.g., <https://www.anritsu.com/en-us/test-measurement/products/md8475b>).



(E.g., [https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products\\_e/md8475a/fig01\\_1-4.jpg?la=en-us](https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products_e/md8475a/fig01_1-4.jpg?la=en-us)).



(E.g., [https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products\\_e/md8475a/screens02\\_1.jpg?la=en-us](https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products_e/md8475a/screens02_1.jpg?la=en-us)).

SmartStudio System Configuration						
System		LTE		W-CDMA	TD-SCDMA	GSM
Digital stored program control switch (the accused product)	Unit	Signalling Tester MD8475B				
	Unit Option	Extended RF MD8475B-002 Fading IO Option MD8475B-004 Multi-cell Software MX847502B				
	Platform Software	Multimedia Interface Software MX847508B AMR-WB MX847508B-001				
Maintaining platform of the switch						
Hardware Subsystem		Multi Signalling Unit MD8475B-070				
Function process units (in the hardware subsystem) of the digital stored program control switch	Basic Configuration	Hardware	Enhanced Multi-signalling Unit MD8475B-071	—	—	GSM Signalling Unit MD8475B-020
		Software	LTE Simulation Software MX847550B	W-CDMA Simulation Software MX847510B	TD-SCDMA Simulation Software MX847540B	GSM/GPRS Simulation Software MX847520B
	Options	LTE 2*2 MIMO Option MX847550B-020		HSPA Evolution/ DC-HSDPA Option MX847510B-011	—	—
		LTE 4x4 MIMO Option MX847550B-021				
		LAA Option MX847550B-030				
		LTE Carrier Aggregation Option MX847550B-040				
		LTE Carrier Aggregation DL3CCs Option MX847550B-041				
		LTE Carrier Aggregation DL4CCs Option MX847550B-042				
		LTE Carrier Aggregation DL5CCs Option MX847550B-043				
		LTE RoHC Option MX847550B-060				
Support Service	MX847570B 1 Year Support Service MX847570B-SS110					
User Interface	SmartStudio MX847570B					

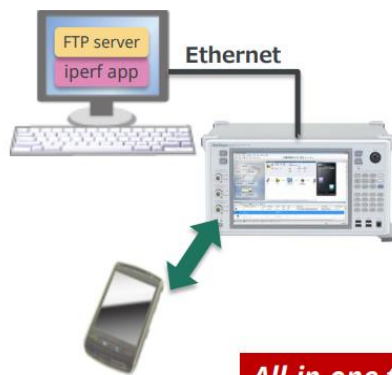
(E.g., <https://www.anritsu.com/en-us/test-measurement/products/md8475b>).

## Simple Throughput Test Environment

- Built-in IP packet generator simplifies data throughput test environment
- Easier data throughput test automation with good repeatability

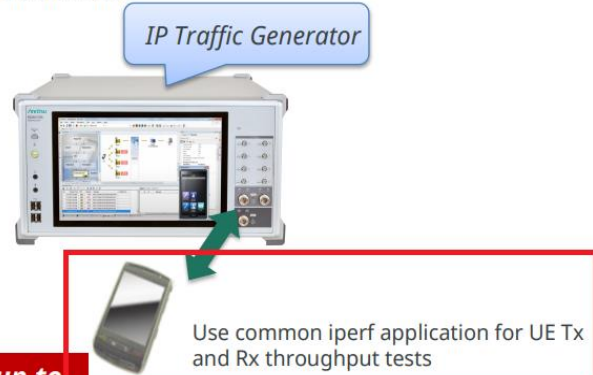
### Conventional throughput testing

- Must adjust radio layer and server settings for each application
- Performance depends on PC specifications and Ethernet load



### Throughput testing with MD8475B

- Single GUI for adjusting application radio layer and server settings
- Performance independent of PC specifications and Ethernet load



**All-in-one throughput tests up to 1 Gbps**

(E.g., <https://dl.cdn-anritsu.com/en-en/test-measurement/files/Product-Introductions/Product-Introduction/md8475b-e11200.pdf>).

## Network Failure Simulation - UE/Network Trigger (2/2)

- Abnormal testing with easy setup
  - UE Message Reject
    - Sets reject condition when MD8475A receives specified message from UE

The image shows two software windows for configuring network triggers. The left window, 'UE Trigger Information Condition Setup - [LTE] - [ESM]', shows a trigger message of 'PDN Connectivity Request (Attach Request)' and a condition ID of 1. It has checkboxes for BTS, BTS1, BTS2, BTS3, and BTS4, and a 'Count' field set to 0. The right window, 'E Condition Setup - [LTE] - [ESM]', shows a trigger message of 'PDN Connectivity Request (Attach Request)' and a condition ID of 1. It contains a table of fields and values for the PDN Connectivity Request message.

Field	Value	Type
PDN connectivity request		DIVISION
EPS bearer identity		V
EPS session management protocol discrim...	No EPS bearer identity	CHOICE
Protocol discriminator	2	PD
Procedure transaction identity		V
Procedure transaction identity	No procedure transact...	CHOICE
PDN connectivity request message identity		V
Message type	D0	MSG
PDN type		V
PDN type	0	FIX
PDN type value	IPv4	CHOICE
Request type		V
Request type	0	FIX
Request type value	Initial request	CHOICE

Below the windows, a diagram shows a smartphone (UE) sending a 'Specified Message' to a network device (MD8475A). The network device then sends a 'Reject' message back to the UE. A pink starburst labeled 'NG' (Not Good) is shown next to the 'Reject' message.

Note: The UE Trigger Information Condition can specify several conditions at one UE Message to Accept, Reject or Ignore according to setting.  
 e.g. One Specified Message -> Condition A -> Reject  
 -> Condition B -> Ignore  
 -> Condition C -> Accept

(E.g., <https://dl.cdn-anritsu.com/en-en/test-measurement/files/Product-Introductions/Product-Introduction/md8475b-e11200.pdf>).

**SmartStudio MX847570B**

This software supports the user interface for scenario-less testing. In addition to offering functions such as sending and receiving SMS messages, sending and receiving ETWS/CMAS messages, making and receiving voice calls, and sending and receiving data packets, it also supports CSCF server functions required for IMS service tests.

- **Support Service**

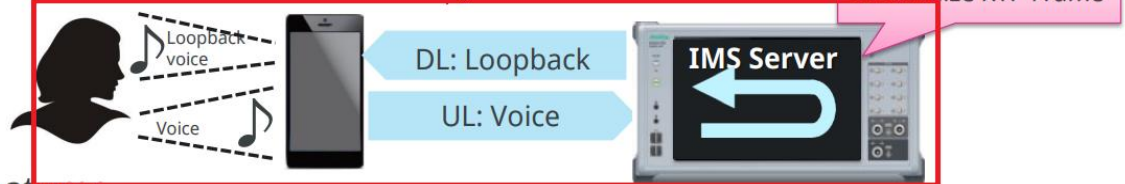
**MX847570B 1Year Support Service MX847570B-SS110**

This service contract offers customers 1 year of support for technical enquiries as well as updates to the latest software versions adding extra functionality and bug fixes via downloads from the web page.

(E.g., <https://dl.cdn-anritsu.com/en-en/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/md8475b-e1201.pdf>).

## VoLTE Quality Test - RTP Frame Control

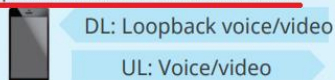
Check operation at abnormal condition and establish current consumption at stable call



### ■ Features

#### ■ VoLTE Loopback

Loopback voice and video data to UE

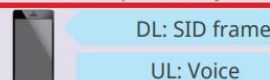


Loopback data delay and loss also supported (Delay, Loss, Edit CMR (Codec Mode Request))

*\*Supported by this option*

#### ■ Mute/Silent (DTX)

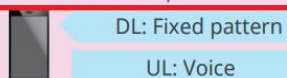
Send SID frame periodically to UE.



*\*Supported by this option*

#### ■ Fixed Pattern

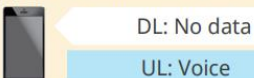
Send fixed voice data pattern to UE



*\*Supported by this option*

#### ■ No Data

Supports UE connection but does not send any data



*\*Supported by this option*

Requires RTP frame control option

(E.g., <https://dl.cdn-anritsu.com/en-en/test-measurement/files/Product-Introductions/Product-Introduction/md8475b-e11200.pdf>).

18. The Accused Instrumentality is a simulated user call test system that comprises the front call control process module (*e.g.*, user equipment (UE)) is included in a main control module of the switch (*e.g.*, the Accused Instrumentality) to receive call test setup parameters (*e.g.*, call test data containing various parameters, such as frequency changes, control status, etc.) provided by the back process module (*e.g.*, GUI-based SmartStudio MX847570B software), control the hardware subsystem (*e.g.*, Hardware) to perform a call test process (*e.g.*, 3G/2G voice call test) according to a flowchart and user parameters set (*e.g.*, various parameters, such as frequency changes, control status, etc.), and report a result of the call test to the back process module (*e.g.*, GUI-based SmartStudio MX847570B software). As shown below, the Accused Instrumentality is a part of the simulated user call test system which is a GUI-based SmartStudio MX847570B software with the MD8475B base-station simulator. The Accused Instrumentality comprises back process module (*e.g.*, GUI-based SmartStudio MX847570B software), a front call control process module (*e.g.*, user equipment (UE)) and a hardware subsystem (*e.g.*, Hardware) for performing a call test (*e.g.*, both basic mobile calls and Voice over LTE (VoLTE) calls test). The back process module (*e.g.*, SmartStudio MX847570B software) provides an operation interface for a user to perform a call test setup (setting various parameters for call test), receives call test result data (*e.g.*, result analysis) transmitted by the front call control process module (*e.g.*, user equipment (UE)), and displays the result on the display of the Accused Instrumentality. The front call control process module receives call test setup parameters provided by the SmartStudio MX847570B software, controls the hardware subsystem (Hardware Units (Multi Signaling unit, GSM signaling unit enhanced signaling unit) in the Accused Instrumentality) to perform a call test, and reports a result of the call test to SmartStudio MX847570B software. The hardware subsystem comprises function process units of the switch to receive instructions from the user equipment (UE), perform tests

comprising picking-up phones, detecting signaling tone, and talking; and report test results to the front call control process module.

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In addition, the time required to configure a test environment is greatly reduced by the easy-to-use GUI-based SmartStudio software, as well as supplied test sequences for automatic remote control of the GUI.

**Multi-cell Testing** Verifies correct mobile handover by changing settings between neighboring base stations.

**Battery Management** Simulates various usage environments for measuring battery life.

**Emergency** Simulates emergency notifications, such as earthquake early warning, which are hard to test on live networks.

**Packet Communication** Evaluates throughput by changing base station settings and simulates built-in SIP server.

**Voice / VoLTE** Tests both basic mobile calls and Voice over LTE (VoLTE) calls.

**WLAN Offload** Simulates a policy server and dedicated gateway for distributing traffic over a WLAN.

performing a call test

(E.g., <https://www.anritsu.com/en-us/test-measurement/products/md8475b>).



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## Features

The Signalling Tester MD8475B is an all-in-one base station simulator supporting LTE, LTE-Advanced, W-CDMA/HSPA/HSPA Evolution/DC-HSDPA, GSM/GPRS/EGPRS and TD-SCDMA/TD-HSPA. It supports service, VoLTE and call-processing tests for multimode LTE smartphones and mobiles with excellent cost-performance.

## Description

## Technologies

In addition, 1-Gbps IP performance evaluation tests are made easy by the built-in traffic generator with all-in-one support for LTE-Advanced 3CA/4CA technologies.

Call test setup parameters provided by the back process module (GUI-based SmartStudio MX847570B software)

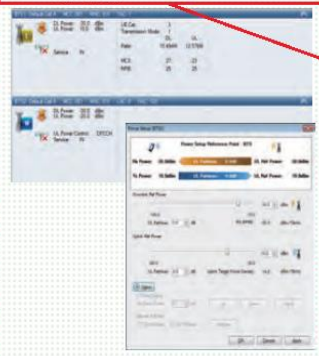
## Simple GUI Settings Eliminate Complex Test-case Creation

Using the GUI-based SmartStudio MX847570B software with the MD8475B base-station simulator makes it easy to configure a smartphone test environment. Various parameters, such as frequency changes, control status, etc., are set at the GUI to run one-touch tests—including quasi-normal tests—that cannot be run easily on live networks. Eliminating the need to create test cases or understand signalling protocols makes it easier to focus on testing smartphone functions and performance.

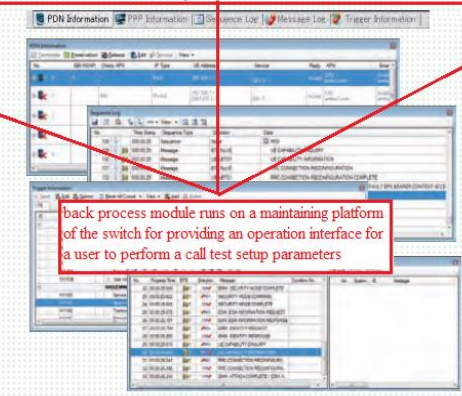


(E.g., <https://www.anritsu.com/en-us/test-measurement/products/md8475b>).

- 3 Double-clicking the base station band displays the base station status. Changes to base station parameters during testing are reflected immediately on-screen.

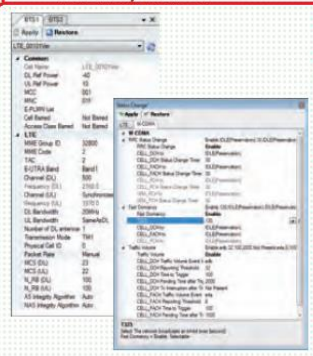


- 4 Details of the Smartphone and SmartStudio status can be verified easily. Changes to reject parameters during testing are reflected immediately on-screen.



back process module runs on a maintaining platform of the switch for providing an operation interface for a user to perform a call test setup parameters

- 5 Both base station parameters and packet communications can be controlled. Changes to status change parameters during testing are reflected immediately on-screen.

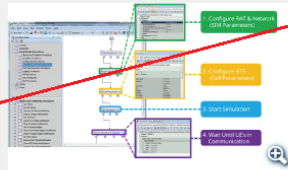


(E.g., <https://dl.cdn-anritsu.com/en-en/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/md8475b-e1201.pdf>).

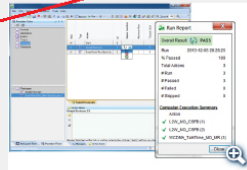
**Automated Continuous Testing with SmartStudio**

The SmartStudio Manager MX847503A software is for editing test sequences and running created test sequences automatically and continuously. This software automates manual testing using the SmartStudio MX847570B software. Automated, operator-free evaluation improves efficiency. Additionally, Pass/Fail evaluations can be reported along with the continuous test results. In particular, the MD8475B supports fully automated tests for all networks even when testing a 20-band LTE terminal using Primary Cell band types and Secondary Cell 1/2 band types requires a total of 8000 band combinations for 3CA tests.

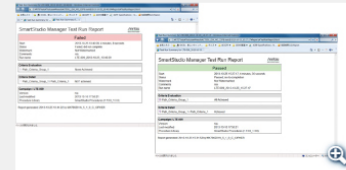
Reporting a result (by front call process module) of the call test to the back process module and displaying the result report by the back process module (GUI-based SmartStudio MX847570B software)



Test Sequence  
Editing Screen

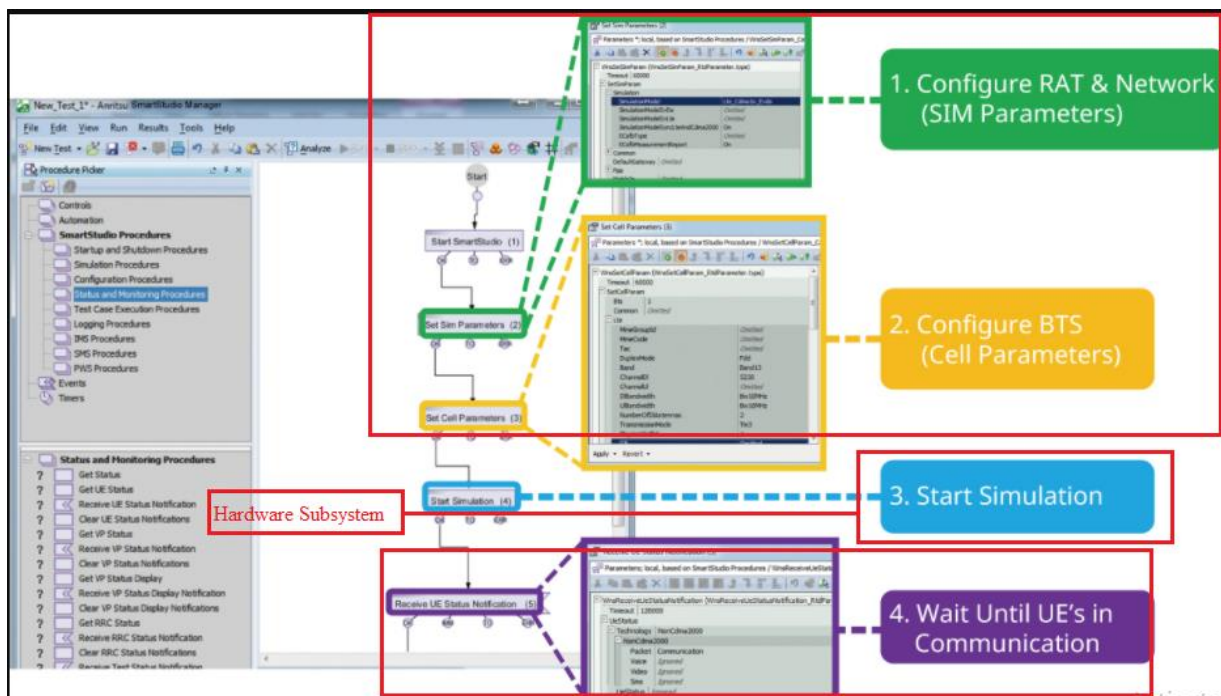


Test Sequence  
Continuous Execution Screen

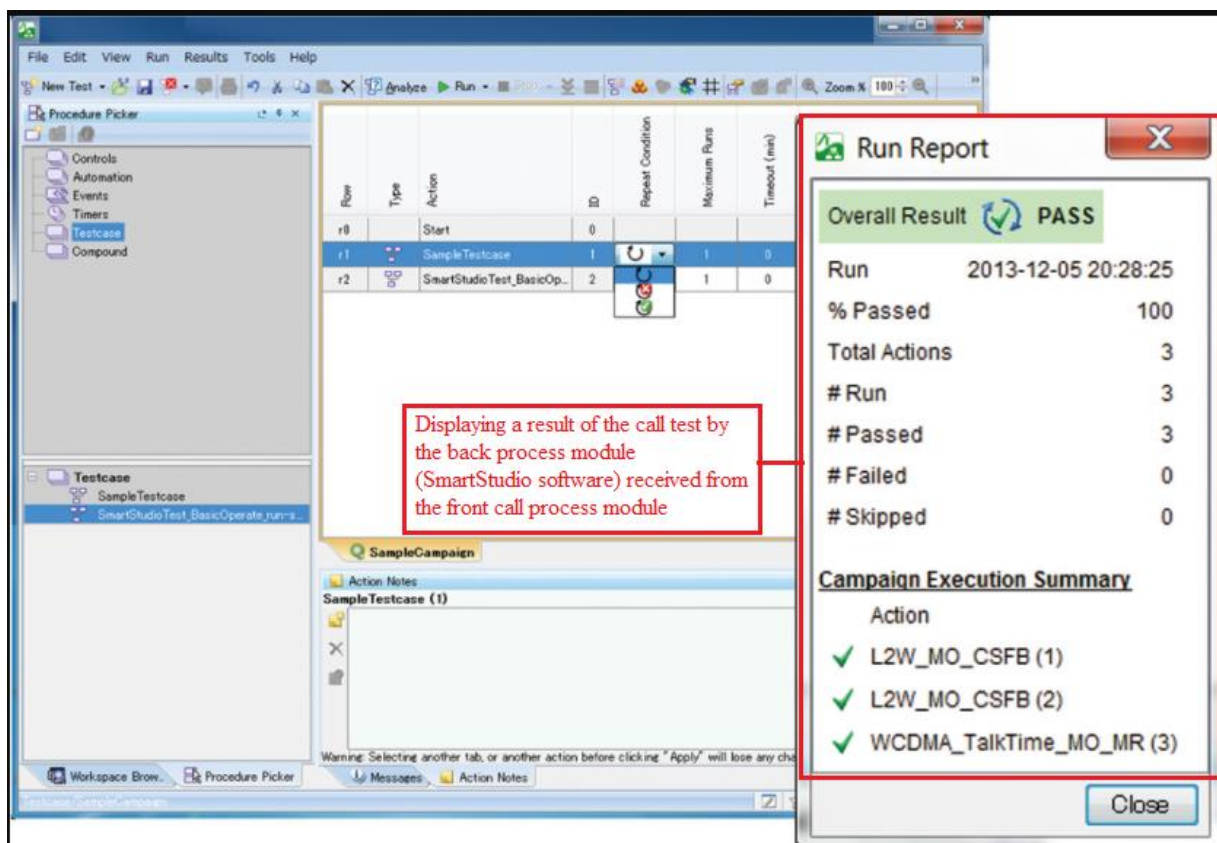


Test Sequence  
Continuous Execution Results Display

(E.g., <https://www.anritsu.com/en-us/test-measurement/products/md8475b>).



(E.g., [https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products\\_e/md8475a/fig01\\_1-4.jpg?la=en-us](https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products_e/md8475a/fig01_1-4.jpg?la=en-us)).



(E.g., [https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products\\_e/md8475a/screens02\\_1.jpg?la=en-us](https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products_e/md8475a/screens02_1.jpg?la=en-us)).

Offloading data traffic to WLAN networks is being deployed as a technology for preventing traffic congestion on mobile networks. The MD8475B supports a WLAN data offload test environment.

**WLAN Offload Basic Option MX847570B-070**

The software option provides functions for forwarding packets between the UE and networks with both Trusted non-3GPP Access and Untrusted non-3GPP Access authentication functions, as well as for monitoring packets graphically.

**ePDG Option MX847570B-071**

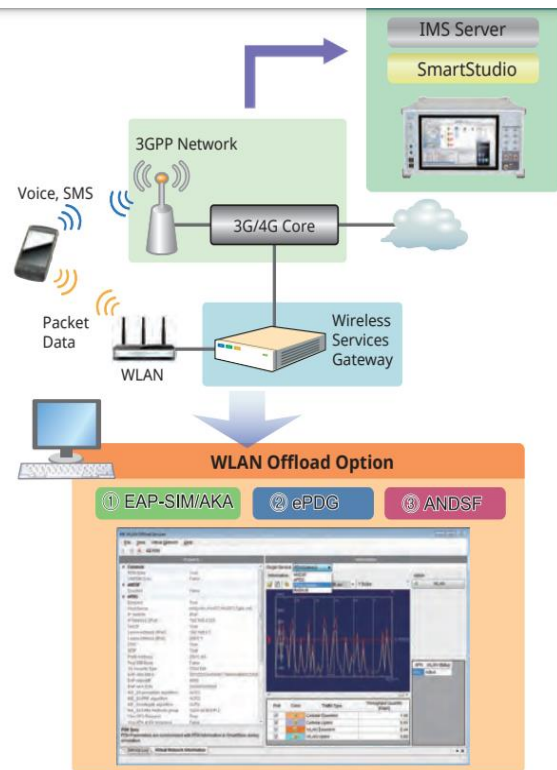
The software option supports the IKEv2 key exchange procedure and IPsec communications functions for Untrusted non-3GPP Access network authentication.

**ANDSF Option MX847570B-072**

The software option supports the function for setting and distributing the system selection policy between 3GPP and WLAN (distributes Policy and Discovery Information according to request from UE, and receives Location and Profile reports from UE).

**Extended ePDG Option MX847570B-073**

The software option supports configuration of an ePDG status fault test environment for inserting errors into the ePDG sequence, setting timeouts, etc. Additionally, this option can be used to support Fast Re-Authentication (EAP-SIM/EAP-AKA) tests without the need to generate UE-side authentication keys.



**Wi-Fi Calling Evaluation Environment**

(E.g., <https://dl.cdn-anritsu.com/en-en/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/md8475b-e1201.pdf>).

SmartStudio System Configuration						
System		LTE		W-CDMA	TD-SCDMA	GSM
Digital stored program control switch (the accused product)	Unit	Signalling Tester MD8475B				
	Unit Option	Extended RF MD8475B-002				
		Fading IO Option MD8475B-004				
Maintaining platform of the switch	Platform Software	Multi-cell Software MX847502B				
		Multimedia Interface Software MX847508B				
Hardware Subsystem	Hardware	AMR-WB MX847508B-001				
		Multi Signalling Unit MD8475B-070				
Function process units (in the hardware subsystem) of the digital stored program control switch	Basic Configuration	Enhanced Multi-signalling Unit MD8475B-071				GSM Signalling Unit MD8475B-020
		LTE Simulation Software MX847550B				
	Options	LTE 2*2 MIMO Option MX847550B-020		W-CDMA Simulation Software MX847510B	TD-SCDMA Simulation Software MX847540B	GSM/GPRS Simulation Software MX847520B
		LTE 4x4 MIMO Option MX847550B-021				
		LAA Option MX847550B-030				
		LTE Carrier Aggregation Option MX847550B-040				
		LTE Carrier Aggregation DL3CCs Option MX847550B-041				
		LTE Carrier Aggregation DL4CCs Option MX847550B-042				
		LTE Carrier Aggregation DL5CCs Option MX847550B-043				
		LTE RoHC Option MX847550B-060				
Support Service	MX847570B 1 Year Support Service MX847570B-SS110					
	User Interface SmartStudio MX847570B					

(E.g., <https://www.anritsu.com/en-us/test-measurement/products/md8475b>).

## Simple Throughput Test Environment

- Built-in IP packet generator simplifies data throughput test environment
- Easier data throughput test automation with good repeatability

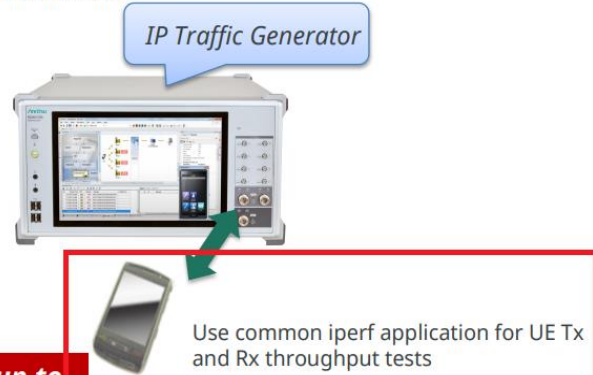
### Conventional throughput testing

- Must adjust radio layer and server settings for each application
- Performance depends on PC specifications and Ethernet load



### Throughput testing with MD8475B

- Single GUI for adjusting application radio layer and server settings
- Performance independent of PC specifications and Ethernet load



**All-in-one throughput tests up to 1 Gbps**

(E.g., <https://dl.cdn-anritsu.com/en-en/test-measurement/files/Product-Introductions/Product-Introduction/md8475b-e11200.pdf>).

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**SmartStudio MX847570B**

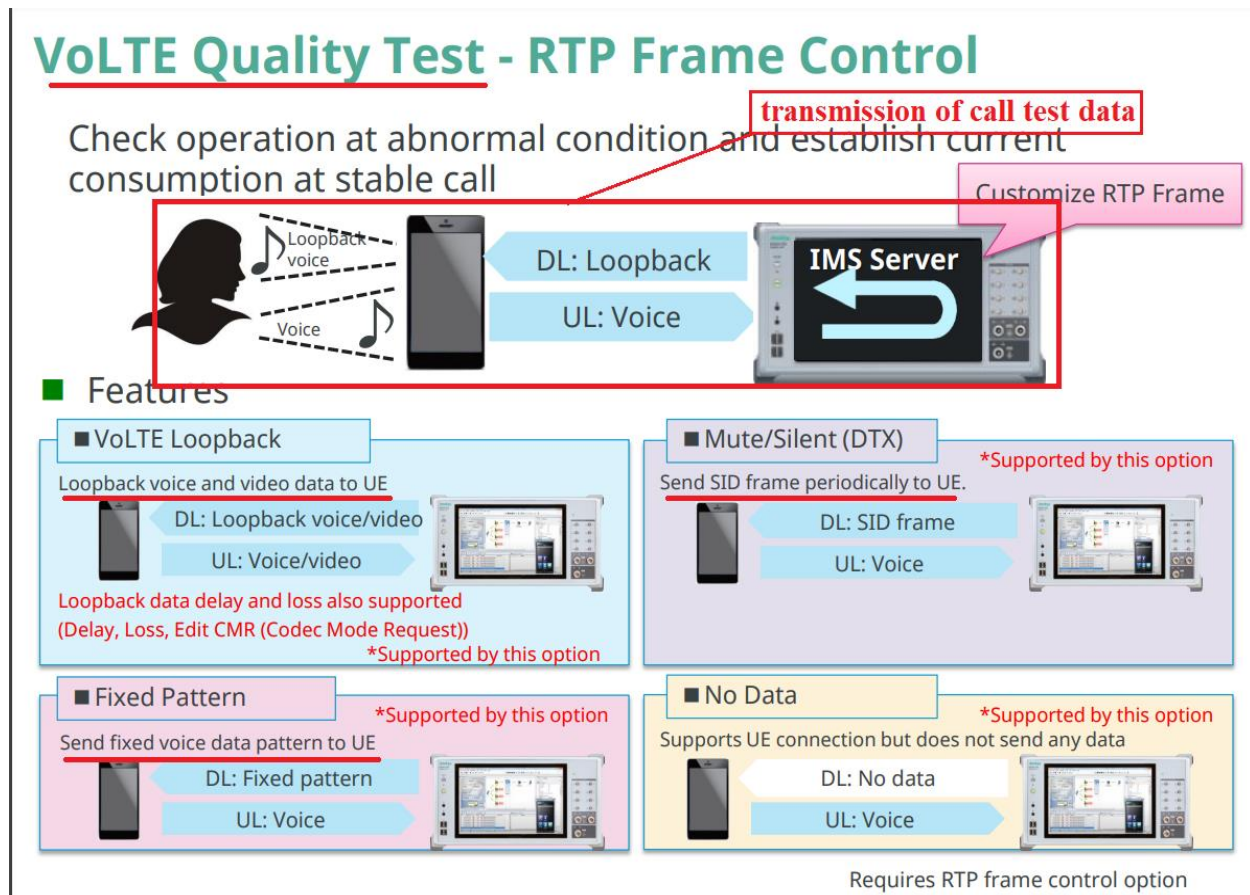
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- **Support Service**

**MX847570B 1Year Support Service MX847570B-SS110**

This service contract offers customers 1 year of support for technical enquiries as well as updates to the latest software versions adding extra functionality and bug fixes via downloads from the web page.

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(E.g., <https://dl.cdn-anritsu.com/en-en/test-measurement/files/Product-Introductions/Product-Introduction/md8475b-el1200.pdf>).

19. The Accused Instrumentality is a simulated user call test system that comprises a hardware subsystem (e.g., Hardware) that comprises function process units of the digital stored program control switch (e.g., the Accused Instrumentality) to receive instructions from the front call control process module (e.g., user equipment (UE)), perform tests comprising at least one of the following: picking-up or hanging-up phones, detecting signaling tone, dialing, sending a test tone, or talking (see below evidence showing picking up, detecting signaling tone and talking etc.); and report test results to the front call control process module (e.g., user equipment (UE)), and wherein the hardware subsystem further comprises a loop relay panel (e.g., display of the MD8475B base-station simulator) used for simulating picking-up or hanging-on a phone in a

calling (*e.g.*, call holding) or called user terminal and dial function of dial pulse form by the calling user. As shown below, the Accused Instrumentality is a part of the simulated user call test system which is a GUI-based SmartStudio MX847570B software with the MD8475B base-station simulator. The Accused Instrumentality comprises back process module (*e.g.*, GUI-based SmartStudio MX847570B software), a front call control process module (*e.g.*, user equipment (UE)) and a hardware subsystem (*e.g.*, Hardware) for performing a call test (*e.g.*, call tests for both basic mobile calls and Voice over LTE (VoLTE) calls test). The back process module (*e.g.*, SmartStudio MX847570B software) provides an operation interface for a user to perform a call test setup (setting various parameters for call test), receives call test result data (*e.g.*, result analysis) transmitted by the front call control process module (*e.g.*, user equipment (UE)), and displays the result on the display of the Accused Instrumentality. The front call control process module receives call test setup parameters provided by the SmartStudio MX847570B software, controls the hardware subsystem (Hardware Units (Multi Signaling unit, GSM signaling unit enhanced signaling unit) in the Accused Instrumentality) to perform a call test, and reports a result of the call test to SmartStudio MX847570B software. The hardware subsystem comprises function process units of the switch to receive instructions from the user equipment (UE), perform tests comprising picking-up phones, detecting signaling tone, and talking; and report test results (*e.g.*, report generator) to the front call control process module.

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performing a call test

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## Features

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## Description

## Technologies

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Call test setup parameters provided by the back process module (GUI-based SmartStudio MX847570B software)

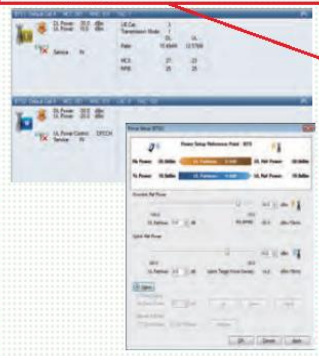
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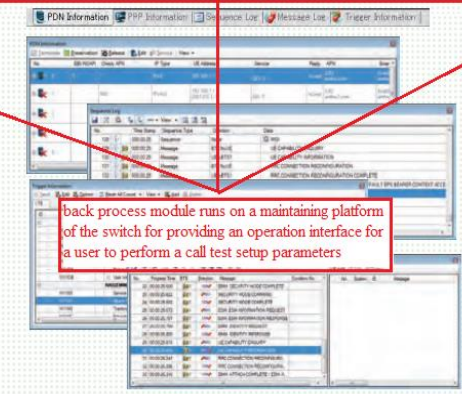


(E.g., <https://www.anritsu.com/en-us/test-measurement/products/md8475b>).

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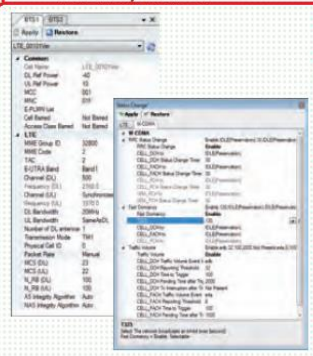


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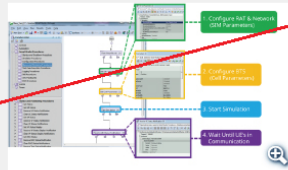


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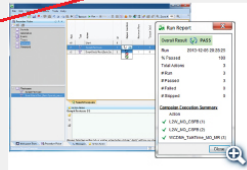
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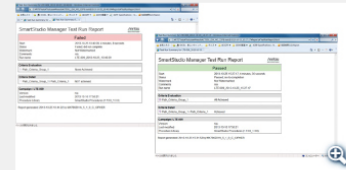
Reporting a result (by front call process module) of the call test to the back process module and displaying the result report by the back process module (GUI-based SmartStudio MX847570B software)



Test Sequence  
Editing Screen

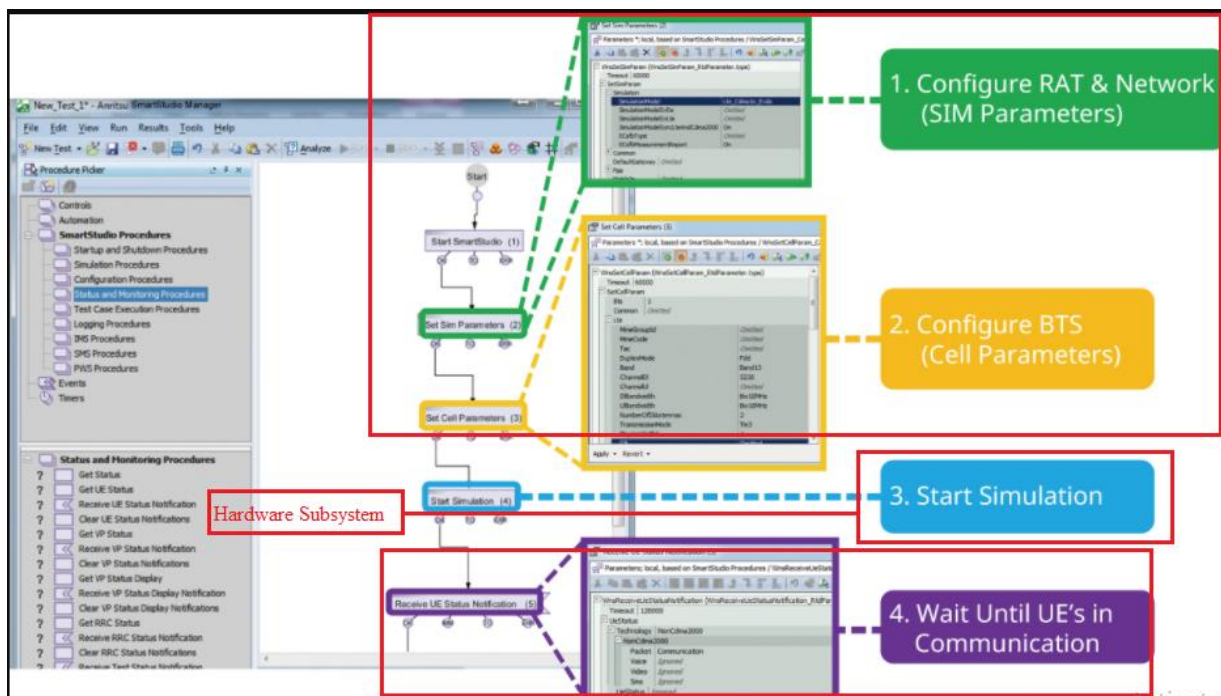


Test Sequence  
Continuous Execution Screen

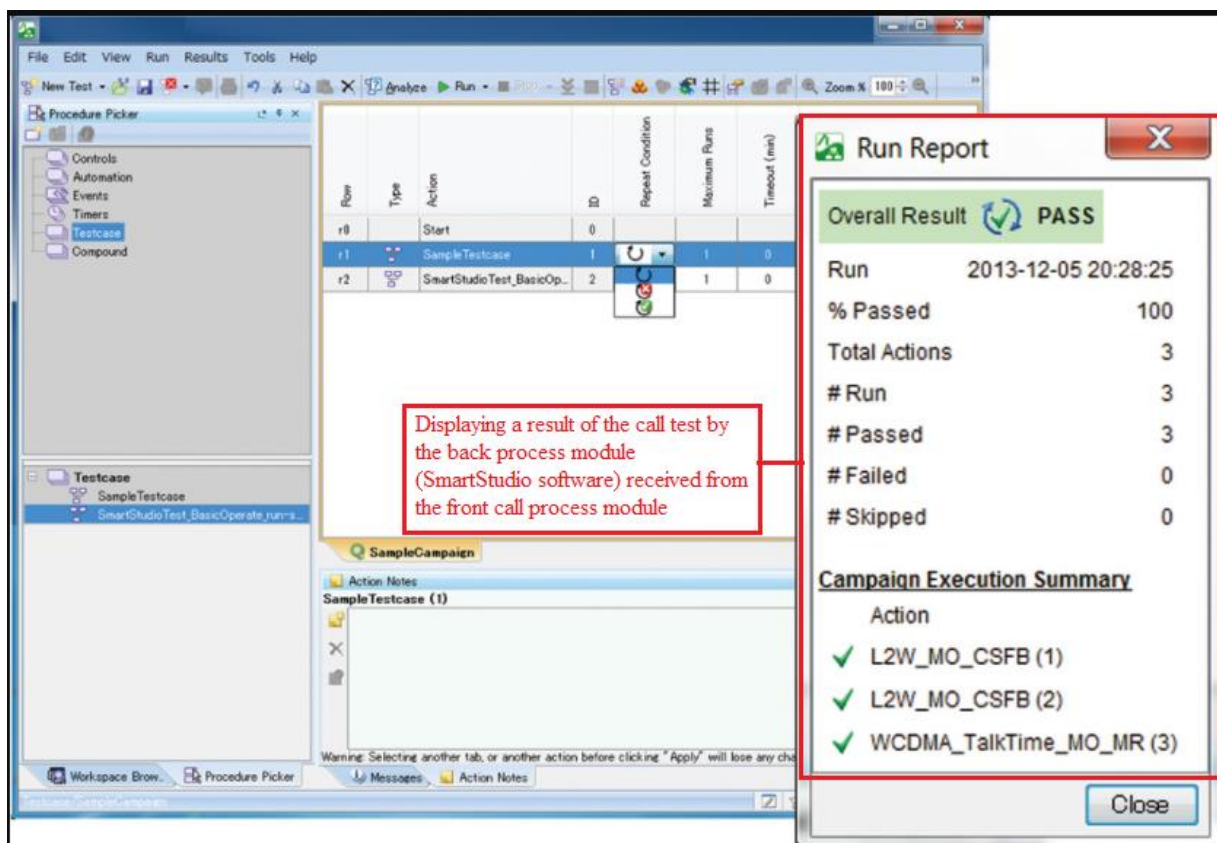


Test Sequence  
Continuous Execution Results Display

(E.g., <https://www.anritsu.com/en-us/test-measurement/products/md8475b>).



(E.g., [https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products\\_e/md8475a/fig01\\_1-4.jpg?la=en-us](https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products_e/md8475a/fig01_1-4.jpg?la=en-us)).



(E.g., [https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products\\_e/md8475a/screens02\\_1.jpg?la=en-us](https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products_e/md8475a/screens02_1.jpg?la=en-us)).

SmartStudio System Configuration						
System		LTE		W-CDMA	TD-SCDMA	GSM
Digital stored program control switch (the accused product)	Unit	Signalling Tester MD8475B				
	Unit Option	Extended RF MD8475B-002 Fading IO Option MD8475B-004 Multi-cell Software MX847502B				
Maintaining platform of the switch	Platform Software	Multimedia Interface Software MX847508B				
Hardware Subsystem	Hardware	Multi Signalling Unit MD8475B-070				GSM Signalling Unit MD8475B-020
		Enhanced Multi-signalling Unit MD8475B-071				
Function process units (in the hardware subsystem) of the digital stored program control switch	Basic Configuration	LTE Simulation Software MX847550B		W-CDMA Simulation Software MX847510B	TD-SCDMA Simulation Software MX847540B	GSM/GPRS Simulation Software MX847520B
		LTE 2x2 MIMO Option MX847550B-020		HSPA Evolution/ DC-HSDPA Option MX847510B-011	—	—
	LTE 4x4 MIMO Option MX847550B-021					
	LAA Option MX847550B-030					
	LTE Carrier Aggregation Option MX847550B-040					
	LTE Carrier Aggregation DL3CCs Option MX847550B-041					
	LTE Carrier Aggregation DL4CCs Option MX847550B-042					
	LTE Carrier Aggregation DL5CCs Option MX847550B-043					
	Options	LTE RoHC Option MX847550B-060				
MX847570B 1 Year Support Service MX847570B-SS110						
Back process module	Support Service User Interface	SmartStudio MX847570B				

(E.g., <https://www.anritsu.com/en-us/test-measurement/products/md8475b>).

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- Built-in IP packet generator simplifies data throughput test environment
- Easier data throughput test automation with good repeatability

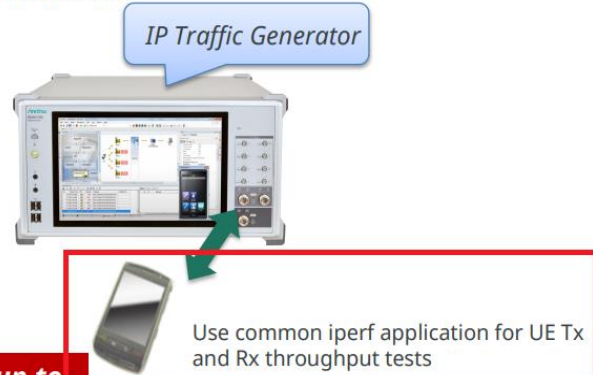
### Conventional throughput testing

- Must adjust radio layer and server settings for each application
- Performance depends on PC specifications and Ethernet load



### Throughput testing with MD8475B

- Single GUI for adjusting application radio layer and server settings
- Performance independent of PC specifications and Ethernet load



**All-in-one throughput tests up to 1 Gbps**

(E.g., <https://dl.cdn-anritsu.com/en-en/test-measurement/files/Product-Introductions/Product-Introduction/md8475b-e11200.pdf>).

## Network Failure Simulation - UE/Network Trigger (2/2)

- Abnormal testing with easy setup
  - UE Message Reject
    - Sets reject condition when MD8475A receives specified message from UE

The image shows two software windows for configuring network triggers. The left window, 'UE Trigger Information Condition Setup - [LTE] - [ESM]', shows a trigger message of 'PDN Connectivity Request (Attach Request)' and a condition ID of 1. It has checkboxes for 'BTS' (checked), 'BTS1', 'BTS2', 'BTS3', and 'BTS4'. The 'Count' is set to 0. The 'IE Value' field is empty. The 'Reply' dropdown is set to 'Reject'. The 'Timer' is set to 'T3396'. The 'Unit' is set to 'Deactivate'. The right window, 'E Condition Setup - [LTE] - [ESM]', shows a trigger message of 'PDN Connectivity Request (Attach Request)' and a condition ID of 1. It contains a table of fields and values for the 'PDN Connectivity Request' message.

Field	Value	Type
PDN connectivity request		DIVISION
EPS bearer identity		V
EPS session management protocol discrim...	No EPS bearer identity	CHOICE
Protocol discriminator	2	PD
Procedure transaction identity		V
Procedure transaction identity	No procedure transact...	CHOICE
PDN connectivity request message identity		V
Message type	D0	MSG
PDN type		V
PDN type	0	FIX
PDN type value	IPv4	CHOICE
Request type		V
Request type	0	FIX
Request type value	Initial request	CHOICE

Note: The UE Trigger Information Condition can specify several conditions at one UE Message to Accept, Reject or Ignore according to setting.  
 e.g. One Specified Message -> Condition A -> Reject  
 -> Condition B -> Ignore  
 -> Condition C -> Accept

(E.g., <https://dl.cdn-anritsu.com/en-en/test-measurement/files/Product-Introductions/Product-Introduction/md8475b-e11200.pdf>).

**SmartStudio MX847570B**

This software supports the user interface for scenario-less testing. In addition to offering functions such as sending and receiving SMS messages, sending and receiving ETWS/CMAS messages, making and receiving voice calls, and sending and receiving data packets, it also supports CSCF server functions required for IMS service tests.

- **Support Service**

**MX847570B 1Year Support Service MX847570B-SS110**

This service contract offers customers 1 year of support for technical enquiries as well as updates to the latest software versions adding extra functionality and bug fixes via downloads from the web page.

The need for voice-call evaluations has not changed even with the spread of LTE services. However, some voice-call test items, such as the access barred condition and emergency calls, are not easily evaluated on live networks. SmartStudio supports comprehensive evaluation of UE under high-load conditions, such as testing of simultaneous voice calls and other functions.

**3G/2G Voice Calling Test**

Just making voice settings using SmartStudio is all that is necessary for voice tests with the MD8475B.

**Multimedia Interface Software MX847508B****Setting Roaming and Registering Address Book**

When performing incoming-call tests of W-CDMA/GSM UE, SmartStudio can display any of 'Public', 'National', 'International', and 'Unknown' on the UE. Additionally, when the incoming call number matches a preregistered number in the address book, the name associated with the number is displayed.



Perform tests comprising at least one of the following: picking-up or hanging-up phones, **detecting signaling tone**, dialing, sending a test tone, or talking

**Setting Identify Type**

When performing incoming call tests of W-CDMA/GSM UEs, either IMSI or TMSI can be chosen for the UE Caller ID using Paging.

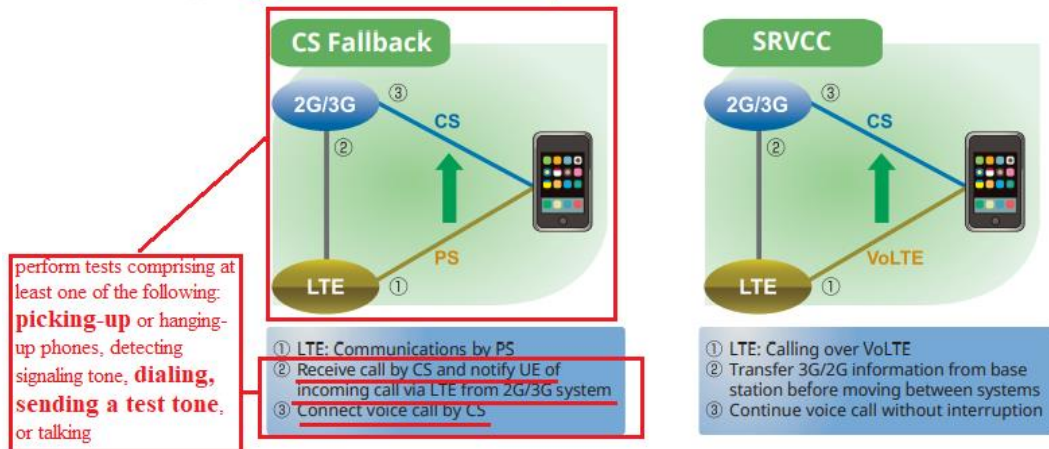


(E.g., <https://dl.cdn-anritsu.com/en-en/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/md8475b-e1201.pdf>).

## Voice Call Evaluation Environment

### Testing Voice Calls from LTE to 3G/2G

A variety of technologies are used when a UE moves between systems from an LTE to 3G/2G cell. Configuring a 2-cell test environment using SmartStudio supports LTE and 2G/3G system voice call tests such as CS Fallback and SV-LTE (Simultaneous Voice and LTE).



### Extended CSCF Option MX847570B-080

This software option adds functions for calling from the network to UE as well as extended functions for CSCF-server-side network congestion and no response status.

### IMS Supplementary Service Option MX847570B-081

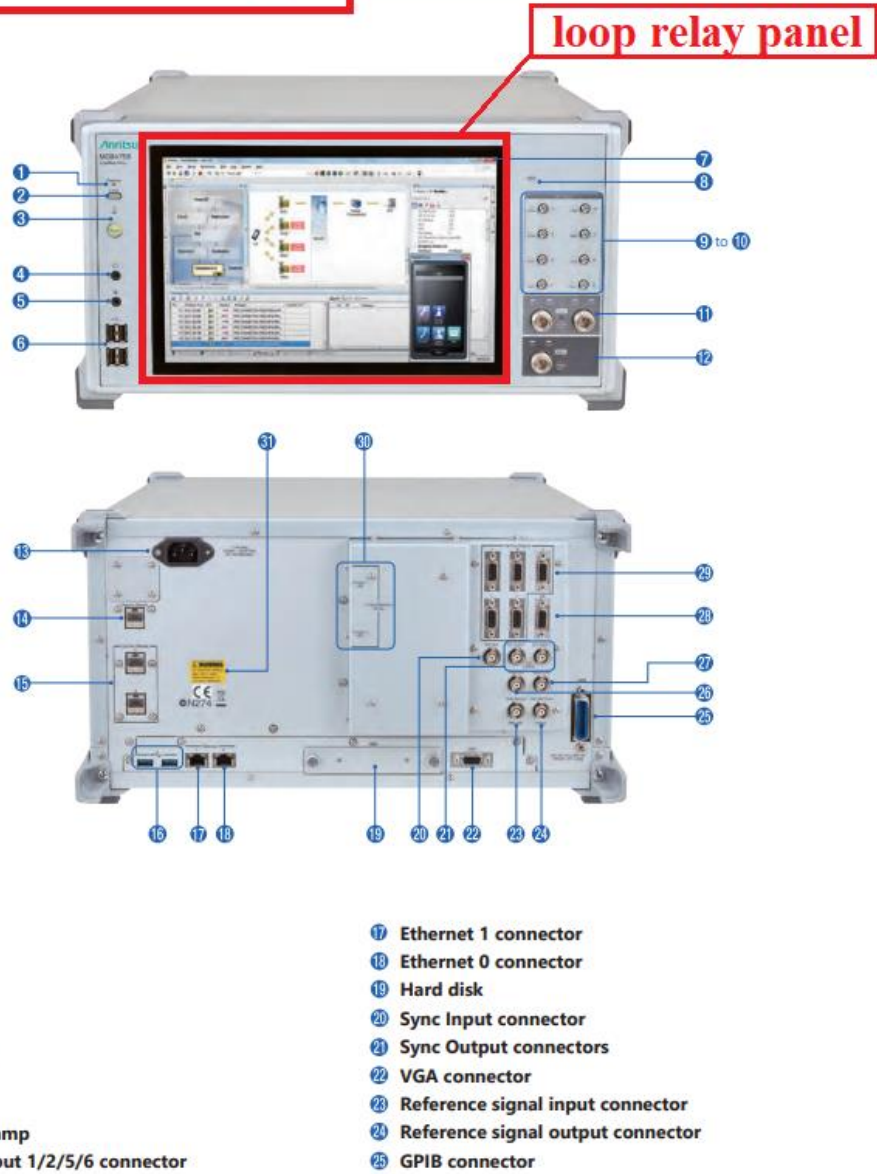
This software option adds other service tests, including VoLTE caller ID display, call forwarding, call holding, etc.

### RCS Basic Option MX847570B-083

This software option simulates RCS services. It is used to perform tests including RCS Configuration, Registration, Instant Messaging, etc.

(E.g., <https://dl.cdn-anritsu.com/en-en/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/md8475b-e1201.pdf>).

### Signalling Tester MD8475B Panel Layout



(E.g., <https://dl.cdn-anritsu.com/en-en/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/md8475b-e1201.pdf>).

20. Plaintiff has been damaged as a result of Defendant's infringing conduct with respect to United States Patent No. 7,668,301. Defendant is thus liable to Plaintiff for damages in an amount that adequately compensates Plaintiff for such Defendant's infringement of the '301 patent, *i.e.*, in an amount that by law cannot be less than would constitute a reasonable royalty for

the use of the patented technology, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

21. On information and belief, and to the extent required, all marking requirements have been complied with.

#### **V. JURY DEMAND**

Plaintiff, under Rule 38 of the Federal Rules of Civil Procedure, requests a trial by jury of any issues so triable by right.

#### **VI. PRAYER FOR RELIEF**

WHEREFORE, Plaintiff respectfully requests that the Court find in its favor and against Defendant, and that the Court grant Plaintiff the following relief:

- a. Judgment that one or more claims of United States Patent No. 7,668,301 have been infringed, either literally and/or under the doctrine of equivalents, by Defendant;
- b. Judgment that Defendant account for and pay to Plaintiff all damages to and costs incurred by Plaintiff because of Defendant's infringing activities and other conduct complained of herein, and an accounting of all infringements and damages not presented at trial;
- c. That Plaintiff be granted pre-judgment and post-judgment interest on the damages caused by Defendant's infringing activities and other conduct complained of herein; and
- d. That Plaintiff be granted such other and further relief as the Court may deem just and proper under the circumstances.

October 31, 2022

Respectfully Submitted,

/s/ David R. Bennett

David R. Bennett

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*Attorneys for Plaintiff Prestwick Licensing LLC*

**CERTIFICATE OF SERVICE**

The undersigned hereby certifies that a true and correct copy of the above and foregoing document has been served on October 31, 2022, to all counsel of record who are deemed to have consented to electronic service via the Court's CM/ECF system per Local Rule CV-5.

/s/ David R. Bennett  
David R. Bennett